



09/977,626

REISSUE PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor: ORTBERG ET AL. Original Patent No.: 5,966,648  
Original Patent Filing Date: DECEMBER 10, 1997 Original Patent Issue Date: OCTOBER 12, 1999  
Reissue Application Filing Date: OCTOBER 12, 2001 Attorney Docket No.: 2316.889USRE  
Title: RF CIRCUIT MODULE AND CHASIS INCLUDING AMPLIFIER

**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service, as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on December 22, 2005.

By: Carla J. Mauch  
Name: Carla J. Mauch

SUBSTITUTE REISSUE DECLARATION  
FOR U.S. PATENT 5,966,648

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

We, Todd Charles Ortberg, Zakhary Bluband, and Glen Backes, declare as follows:

1. a. I, Todd Charles Ortberg, am a citizen of the United States of America,  
residing at: 2221 Lukewood Drive  
Chanhassen, Minnesota 55317  
which address is also my mailing address.
  
- b. I, Zakhary Bluband, am a citizen of the United States of America,  
residing at: 11484 Fairfield Road SW 402  
Minnetonka, Minnesota 55305  
which address is also my mailing address.

c. I, Glen Backes, am a citizen of the United States of America,  
residing at: 17580 79th Place North  
Maple Grove, Minnesota 55311  
which address is also my mailing address.

2. We are the original and first inventors of the invention described in Letters Patent No. 5,966,648, granted October 12, 1999, and described and claimed in the present reissue application for which we have solicited a reissue patent.

3. We have reviewed and understand the contents of the specification and claims of this application, including new claims 10-44 added by preliminary amendment, new claims 45-70 added by subsequent amendment, and the further amendments made to claims 1-7, 9-25, 27-34, 36-42, 44-55, and 57-59. We believe the above-identified patent is partially inoperative by reason of claiming less than we had the right to claim in the patent. Specifically, we believe that we are entitled to broader claims than the claims that were presented in the above-mentioned patent. This subject matter is set forth in reissue claims 10-70 added as part of this reissue application, and in the subsequent amendments to claims 1-7, 9-25, 27-34, 36-42, 44-55, and 57-59. It was an error to fail to include in the above-identified patent, claims commensurate in scope with those set forth in reissue claims 10-70, and in the subsequent amendments to claims 1-7, 9-25, 27-34, 36-42, 44-55, and 57-59.

4. Specifically, it was an error, for example, not to include a claim such as claim 10, which is reproduced below next to original claim 1. In claim 10, some structural limitations of the housing, such as the "front face including end portions extending beyond each of said end

walls," have been deleted. The limitation of the lock member has also been deleted. Further, the limitation of "a circuit board" has been changed to "circuitry"; and, the limitation of "a transformer" has been changed to "a power downconverter". It was an error not to include such a claim, with the broadened limitations.

| Claim 1   | Claim 10   |
|---|--|
| 1. A chassis frame and module combination comprising:   | 10. A chassis frame and module combination comprising:   |
| a) an amplifier module having:  | a) an amplifier module having:   |
| 1) a housing of electrically conductive material defining an enclosed interior; said housing having a front face and an opposite rear face separated by opposite sidewalls and opposite end walls, with each of said faces and sidewalls being of predetermined dimension and with said sidewalls being parallel to one another; each of said end walls having a projecting flange extending in a common plane generally parallel to said sidewalls and with said common plane offset from a central longitudinal axis of said housing; said front face including end portions extending beyond each of said end walls; | 1) a housing defining an enclosed interior; said housing having a front face and an opposite rear face separated by opposite sidewalls and opposite end walls, each of said end walls having a projecting flange;  |
| 2) two coax connectors secured to said rear face with an outer shield of said coax connectors electrically coupled to said housing;   | 2) two coax connectors secured to said rear face with an outer shield of said coax connectors electrically coupled to said housing;  |
| 3) a circuit board contained within said interior and positioned generally parallel to and spaced between said sidewalls; said circuit board having a component side opposing a first of said sidewalls and a ground side opposing a second of said sidewalls, said ground side including a layer of electrically conductive material electrically connected to said housing; a plurality of connection locations on said circuit   | 3) circuitry contained within said housing; said circuitry including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide an amplified radio frequency signal to the other of said connectors; |

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| <p>board, each of said connection locations including a ground connection for connecting ground shields of coax cables to said layer of electrically conductive material; said component side of said circuit board including a circuit component interconnected with said connection locations through a circuit path; said circuit component including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide an amplified radio frequency signal to the other of said coax connectors; said coax connectors connected to said connection locations, each of said outer shields of said coax connectors connected to said ground connections of said connection locations;</p> |  |
| <p>4) A power supply port located on said rear face, said power supply port interconnected to said amplifier circuit through a circuit path of said circuit board;</p>   | <p>4) a power supply port operatively coupled to said amplifier circuit;</p>   |
| <p>b) a chassis frame including a pair of spaced apart walls, said walls spaced apart by a distance substantially equal to a distance between said end walls of said module; each of said walls including a groove, each groove sized to slidably receive one of said projecting flanges;</p>  | <p>b) a chassis frame including a pair of spaced apart walls, said walls spaced apart by a distance substantially equal to a distance between said end walls of said module; each of said walls including a groove sized to slidably receive one of said projecting flanges;</p> |
| <p>c) a lock member for locking at least one of said end portions to said chassis frame;</p>   |  |
| <p>d) a transformer separate from said amplifier module, said transformer mounted to said chassis frame, said transformer electrically coupled to said power supply port of said amplifier module for powering said amplifier circuit.</p>   | <p>c) a power downconverter separate from said amplifier module, said power downconverter mounted to said chassis frame, said power downconverter electrically coupled to said power supply port of said amplifier module for powering said amplifier circuit.</p>               |

Also, it was an error, for example, not to include a claim such as claim 28, which is reproduced below next to original claim 1. In claim 28, some structural limitations of the housing, such as the "front face including end portions extending beyond each of said end walls," have been deleted. Further, the limitation of "a circuit board" has been changed to "circuitry"; the limitation of "a lock member" has been changed to "a retainer"; and, the limitation of "a transformer" has been changed to "a power downconverter". It was an error not to include such a claim, with the broadened limitations.

| Claim 1   | Claim 28  |
|---|---|
| 1. A chassis frame and module combination comprising:   | 28. A chassis frame and module combination comprising:  |
| a) an amplifier module having:  | a) an amplifier module having:  |
| 1) a housing of electrically conductive material defining an enclosed interior; said housing having a front face and an opposite rear face separated by opposite sidewalls and opposite end walls, with each of said faces and sidewalls being of predetermined dimension and with said sidewalls being parallel to one another; each of said end walls having a projecting flange extending in a common plane generally parallel to said sidewalls and with said common plane offset from a central longitudinal axis of said housing; said front face including end portions extending beyond each of said end walls; | 1) a housing defining an enclosed interior; said housing having a front face and an opposite rear face separated by opposite sidewalls and opposite end walls;                                |
| 2) two coax connectors secured to said rear face with an outer shield of said coax connectors electrically coupled to said housing;   | 2) two coax connectors secured to said rear face with an outer shield of said coax connectors electrically coupled to said housing;   |
| 3) a circuit board contained within said interior and positioned generally parallel to and spaced between said sidewalls; said circuit board having a component side opposing a first of said   | 3) circuitry contained within said housing; said circuitry including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide |

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| <p>sidewalls and a ground side opposing a second of said sidewalls, said ground side including a layer of electrically conductive material electrically connected to said housing; a plurality of connection locations on said circuit board, each of said connection locations including a ground connection for connecting ground shields of coax cables to said layer of electrically conductive material; said component side of said circuit board including a circuit component interconnected with said connection locations through a circuit path; said circuit component including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide an amplified radio frequency signal to the other of said coax connectors; said coax connectors connected to said connection locations, each of said outer shields of said coax connectors connected to said ground connections of said connection locations;</p> | <p>an amplified radio frequency signal to the other of said coax connectors;</p>   |
| <p>4) A power supply port located on said rear face, said power supply port interconnected to said amplifier circuit through a circuit path of said circuit board;</p>   | <p>4) a power supply port operatively coupled to said amplifier circuit;</p>   |
| <p>b) a chassis frame including a pair of spaced apart walls, said walls spaced apart by a distance substantially equal to a distance between said end walls of said module; each of said walls including a groove, each groove sized to slidably receive one of said projecting flanges;</p>  | <p>b) a chassis frame including a pair of spaced apart walls, said walls spaced apart by a distance substantially equal to a distance between said end walls of said module;</p> |
| <p>c) a lock member for locking at least one of said end portions to said chassis frame;</p>   | <p>c) a retainer for retaining said housing in said chassis frame;</p>   |
| <p>d) a transformer separate from said amplifier module, said transformer mounted to said chassis frame, said</p>  | <p>d) a power downconverter separate from said amplifier module, said power converter mounted to said chassis</p>  |

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| transformer electrically coupled to said power supply port of said amplifier module for powering said amplifier circuit. | frame, said power downconverter electrically coupled to said power supply port of said amplifier module for powering said amplifier circuit. |
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In addition, it was an error, for example, not to include a claim such as claim 45, which is reproduced below next to original claim 1. In claim 45, some structural limitations of the housing, such as the "front face including end portions extending beyond each of said end walls," have been deleted. The limitation of the lock member has also been deleted. Further, the limitation of "a circuit board" has been changed to "circuitry"; and, the limitation of "a transformer" has been changed to "a power downconverter". It was an error not to include such a claim, with the broadened limitations.

| Claim 1   | Claim 45   |
|---|--|
| 1. A chassis frame and module combination comprising:   | 45. A chassis frame and module combination comprising:   |
| a) an amplifier module having:  | a) an amplifier module having:   |
| 1) a housing of electrically conductive material defining an enclosed interior; said housing having a front face and an opposite rear face separated by opposite sidewalls and opposite end walls, with each of said faces and sidewalls being of predetermined dimension and with said sidewalls being parallel to one another; each of said end walls having a projecting flange extending in a common plane generally parallel to said sidewalls and with said common plane offset from a central longitudinal axis of said housing; said front face including end portions extending beyond each of said end walls; | 1) a housing defining an enclosed interior; said housing having a front and a back;                      |
| 2) two coax connectors secured to said rear face with an outer shield of said coax connectors electrically  | 2) two coax connectors secured to said housing with an outer shield of said coax connectors electrically |

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| <p>coupled to said housing;</p> <p>3) a circuit board contained within said interior and positioned generally parallel to and spaced between said sidewalls; said circuit board having a component side opposing a first of said sidewalls and a ground side opposing a second of said sidewalls, said ground side including a layer of electrically conductive material electrically connected to said housing; a plurality of connection locations on said circuit board, each of said connection locations including a ground connection for connecting ground shields of coax cables to said layer of electrically conductive material; said component side of said circuit board including a circuit component interconnected with said connection locations through a circuit path; said circuit component including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide an amplified radio frequency signal to the other of said coax connectors; said coax connectors connected to said connection locations, each of said outer shields of said coax connectors connected to said ground connections of said connection locations;</p> | <p>coupled to said housing;</p> <p>3) circuitry contained within said housing; said circuitry including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide an amplified radio frequency signal to the other of said connectors;</p> |
| <p>4) A power supply port located on said rear face, said power supply port interconnected to said amplifier circuit through a circuit path of said circuit board;</p>   | <p>4) a power supply port operatively coupled to said amplifier circuit;</p>  |
| <p>b) a chassis frame including a pair of spaced apart walls, said walls spaced apart by a distance substantially equal to a distance between said end walls of said module; each of said walls including a groove, each groove sized to slidably receive one of said projecting flanges;</p>  | <p>b) a chassis frame sized to receive said module;</p>   |

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| c) a lock member for locking at least one of said end portions to said chassis frame;   |   |
| d) a transformer separate from said amplifier module, said transformer mounted to said chassis frame, said transformer electrically coupled to said power supply port of said amplifier module for powering said amplifier circuit. | c) a power downconverter separate from said amplifier module, said power downconverter mounted to said chassis frame, said power downconverter electrically coupled to said power supply port of said amplifier module for powering said amplifier circuit. |

Further, it was an error, for example, not to include a claim such as claim 60, which is reproduced below next to original claim 1. Claim 60 is directed toward a module mountable within a chassis. In claim 60, some structural limitations of the housing recited in claim 1, such as the "front face including end portions extending beyond each of said end walls," have been deleted. The limitation of the lock member recited in claim 1 has also been deleted. Further, the limitation of "a circuit board" has been changed to "circuitry". It was an error not to include such a claim directed toward a module.

| Claim 1   | Claim 60   |
|---|--|
| 1. A chassis frame and module combination comprising:<br>a) an amplifier module having:   | 60. A module mountable within a chassis, the chassis including a pair of spaced apart walls each having a groove and a mounted power downconverter separate from the module, the module comprising:  |
| 1) a housing of electrically conductive material defining an enclosed interior; said housing having a front face and an opposite rear face separated by opposite sidewalls and opposite end walls, with each of said faces and sidewalls being of predetermined dimension and with said sidewalls being parallel to one another; each of said end walls having a projecting flange extending in a | a) a housing defining an enclosed interior; said housing having a front face and an opposite rear face separated by opposite sidewalls and opposite end walls, the end walls spaced apart by a distance substantially equal to a distance between said spaced apart chassis walls; |

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| <p>common plane generally parallel to said sidewalls and with said common plane offset from a central longitudinal axis of said housing; said front face including end portions extending beyond each of said end walls;</p>   |  |
| <p>2) two coax connectors secured to said rear face with an outer shield of said coax connectors electrically coupled to said housing;</p>   | <p>b) two coax connectors secured to said housing with an outer shield of said coax connectors electrically coupled to said housing;</p>   |
| <p>3) a circuit board contained within said interior and positioned generally parallel to and spaced between said sidewalls; said circuit board having a component side opposing a first of said sidewalls and a ground side opposing a second of said sidewalls, said ground side including a layer of electrically conductive material electrically connected to said housing; a plurality of connection locations on said circuit board, each of said connection locations including a ground connection for connecting ground shields of coax cables to said layer of electrically conductive material; said component side of said circuit board including a circuit component interconnected with said connection locations through a circuit path; said circuit component including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide an amplified radio frequency signal to the other of said coax connectors; said coax connectors connected to said connection locations, each of said outer shields of said coax connectors connected to said ground connections of said connection locations;</p> | <p>c) circuitry contained within said housing; said circuitry including an amplifier circuit selected to amplify a radio frequency signal supplied to one of said coax connectors and to provide an amplified radio frequency signal to the other of said coax connectors; and</p> |
| <p>4) A power supply port located on said rear face, said power supply port interconnected to said amplifier circuit through a circuit path of said circuit</p>  | <p>d) a power supply port for electrically connecting said module to said separately mounted downconverter, said power supply port operatively</p>   |

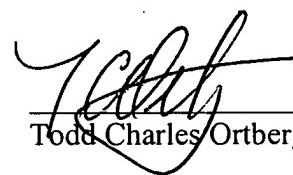
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| board;   | coupled to said amplifier circuit.<br>(see preamble) |
| b) a chassis frame including a pair of spaced apart walls, said walls spaced apart by a distance substantially equal to a distance between said end walls of said module; each of said walls including a groove, each groove sized to slidably receive one of said projecting flanges; |  |
| c) a lock member for locking at least one of said end portions to said chassis frame;  |  |
| d) a transformer separate from said amplifier module, said transformer mounted to said chassis frame, said transformer electrically coupled to said power supply port of said amplifier module for powering said amplifier circuit.  | (see preamble)                                       |

5. All errors being corrected in this reissue application by any and all amendments arose without any deceptive intention on our part.

6. We acknowledge the duty to disclose information that is material to the examination of this application in accordance with 37 C.F.R. § 1.56(a).

7. We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of the Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: 12/15/05

  
\_\_\_\_\_  
Todd Charles Ortberg

Date: \_\_\_\_\_

\_\_\_\_\_  
Zakhary Bluband

Date: \_\_\_\_\_

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Date: \_\_\_\_\_

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Date: 12-7-05

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Date: \_\_\_\_\_

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Date: \_\_\_\_\_

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Date: Dec. 19, 2005

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